

## 108.6 - Fossil Fuel: Trace Elements (solid forms)

PLEASE NOTE: The tables are presented to facilitate comparisons among a family of materials to help customers select the best SRM for their needs. For specific values and uncertainties, the certificate is the only official source.

SRM	1632d	1633c	1635	2689	2690	2691	2718	2719
Description	Trace Elements in Coal, (Bituminous)	Trace Elements in Coal Fly Ash	Trace Elements in Coal (Subbituminous)	Coal Fly Ash	Coal Fly Ash	Coal Fly Ash	Green Petroleum Coke	Calcined Petroleum Coke
Unit of Issue	(50 g)	(75 g)	(75 g)	(set (3))	(set (3))	(set (3))	(50 g)	(50 g)

Elemental Composition as mass fraction in mg/kg (ppm) unless noted by an asterisk \* for %

<b>Aluminum (Al)</b>	0.912*	13.28*	(0.32*)	12.94	12.35*	9.81*	16.5	58.9
<b>Antimony (Sb)</b>	0.445	8.56	(0.14)	(9)	(6)	(3)		
<b>Arsenic (As)</b>	6.1	186.2	0.42	(200)	(26)	(30)		
<b>Barium (Ba)</b>	40.42	0.1126*		(800)	(5800)	(5900)		
<b>Beryllium (Be)</b>		(16)		(21)	(8)	(8)		
<b>Boron (B)</b>	62							
<b>Bromine (Br)</b>		(2.9)		(3)	(0.7)			
<b>Cadmium (Cd)</b>	0.08	0.758	0.03			(0.9)		
<b>Calcium (Ca)</b>	0.144*	1.365*		2.18*	5.71*	18.45*	174	57.7
<b>Carbon (C)</b>	76.88						(89.0*)	(97.1*)
<b>Cerium (Ce)</b>	11.7	(180)	(3.6)					
<b>Cesium (Cs)</b>	0.598	9.39		(11)	(8)	(1)		
<b>Chlorine (Cl)</b>	1142							
<b>Chromium (Cr)</b>	13.7	258	2.5	(170)	(67)	(68)		
<b>Cobalt (Co)</b>	3.424	42.9	(0.65)	(48)	(19)	(26)	5.79	18.6

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<b>Copper (Cu)</b>	5.83	173.7	3.6					
<b>Dysprosium (Dy)</b>	(0.9)	18.70						
<b>Europium (Eu)</b>	0.217	4.67	(0.06)	(3)	(2)	(2)		
<b>Fluorine (F)</b>			25.9					
<b>Gallium (Ga)</b>		(55)	(1.05)					

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<b>Germanium (Ge)</b>	(13)						
<b>Hafnium (Hf)</b>	(0.5)	(6.0)	(0.29)	(0.29)	(8)	(10)	
<b>Holmium (Ho)</b>		(0.14)					
<b>Hydrogen (H)</b>	5.10*	10.49*					(3.47*) (0.17*)
<b>Indium (In)</b>		(0.14)					
<b>Iron (Fe)</b>	0.749*	10.49*	0.239*	9.32*	3.57*	4.42*	290 201.6
<b>Lanthanum (La)</b>	(6)	87.0					
<b>Lead (Pb)</b>	3.845	95.2	1.9	(52)	(39)	(29)	
<b>Lutetium (Lu)</b>		1.32					
<b>Magnesium (Mg)</b>	390	0.498*		0.61*	1.53*	3.12*	
<b>Manganese (Mn)</b>	13.1	240.2	21.4	(300)	(300)	(200)	

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<b>Mercury (Hg)</b>	0.0928	1.005	0.0109	(<0.003)	(0.003)	(<0.003)		
<b>Neodymium (Nd)</b>		(87)						
<b>Nickel (Ni)</b>	(10)	132	1.74	(122)	(46)	(53)	139.1	204
<b>Nitrogen (N)</b>	1.59*	0.192					(1.23*)	(1.17*)
<b>Phosphorus (P)</b>		0.192*		0.10*	0.52*	0.51*		
<b>Potassium (K)</b>	1094	1.773*		2.20*	1.04*	0.34*		
<b>Rubidium (Rb)</b>	7.36	117.42						
<b>Samarium (Sm)</b>	(1)	(19)						
<b>Scandium (Sc)</b>	2.89	37.6	(0.63)	(32)	(17)	(24)		
<b>Selenium (Se)</b>	1.29	13.9	0.9	(7)	(0.8)	(17)		
<b>Silicon (Si)</b>	1.65*	21.30*		24.06*	25.85*	16.83*	(63)	(138)
<b>Sodium (Na)</b>	296.9	0.1707*	(0.24)	0.25*	0.24*	1.09*	88.6	15.1
<b>Strontium (Sr)</b>	63.5	901		(700)	(2000)	(2700)		
<b>Sulfur (S)</b>	1.462*	0.118*	0.3616*		0.15*	0.83*	4.7032*	0.8877*
<b>Tantalum (Ta)</b>		1.58						

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<b>Terbium (Tb)</b>	<b>3.12</b>					
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<b>Thorium (Th)</b>	1.428	23.0	0.62	(25)	(25)	(26)
<b>Tin (Sn)</b>		0.724*				
<b>Titanium (Ti)</b>	477	0.724*	(0.02*)	0.75*	0.52*	0.90*
<b>Uranium (U)</b>	0.517	9.25	0.24			
<b>Vanadium (V)</b>	23.74	286.2	5.2		302	58.6
<b>Yttrium (Y)</b>		(7.7)				
<b>Zinc (Zn)</b>	12.9	235	4.7	(240)	(120)	(120)

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